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The Thing Breathed

Joe Watson
j.m.watson@sussex.ac.uk

Sussex University, Brighton, UK

Abstract

The Thing Breathed is a modular synthesis composition for live performance. It explores nested feedback networks instantiated in analogue synthesis, presenting a chaotic complexity that occludes attempts to fully understand the system. It is a 'black box' to its performer, who spends performance time searching for rare yet fruitful zones of sonic interest that have been discovered through rehearsal and experiment. As such the nature of the performance is one of risk and commitment, steering rather than commanding, performative rather than pre-programmed.

Keywords
Cybernetics
Self-organisation
Feedback
Analogue interfaces
Performativity

Introduction

The Thing Breathed is a modular synthesis composition for live performance. It was performed five times in 2015 at various locations in and around Brighton, UK. The piece has been dusted off for ICLI2018 because its artistic and scholarly concerns resonate with many of those of the conference, and, since the improvisatory nature of the performance means that each performance is unique, it is hoped that a fresh setting and an audience of critical but like-minded interface enthusiasts will breathe new life into the thing.

1.Artistic and scholarly context

Admittedly, we enter into a strange world, continually evolving but continually conserving all that has gone on, as fractal traces. It is, for all that a very beautiful world, at least insofar as I am able to glimpse it. (Pask 1992, 57)

The Thing Breathed is a performative[1] modular synthesis environment built around complex, nested feedback networks. The genesis of this work coincided with my first blush of excitement researching cybernetics, but also carried over concerns from the previous stage of PhD practice, centered on *musique concrète* and tape-music installation, such as alternatives to ubiquitous digital technologies, embodied cognition, gesture and ergonomics, and physical, resistant materiality. The initial modular synthesis work addressed a concept central to cybernetics, that of self-organising systems,[2] through attempts to build 'self-generating' patches, as they are known in the modular synthesis community: setups that 'play themselves', without the need for human intervention, while maintaining sonic interest, such as Douglas Leedy's *Entropical Paradise*, documented and discussed at length in Strange (1983, 244-247). [3] British cybernetician Gordon Pask defined self-organising systems thus: "any system with a behavior that becomes more ordered (according to some vague criterion or other) is called a 'self-organizing system'" (Pask 1964, 110). Early in his career he noted that "naturally occurring networks, of interest because they have a self-organizing character, are, for example, a marsh, a colony of micro-organisms, a research team, and a man" (Pask 1959, 232).

After initial experimental work in this area it became clear that a fully self-generating system was unsatisfactory, and a performer *would* be necessary, though intervention could be minimal at times. In practice, wholly autonomous self-generating patches tend not to be self-organising: once they are set in motion they do not exhibit an increase in order. Though 'order' (from some perspective or another) may well ebb and flow in such pieces, and this may be a significant part of the piece's interest, over a sustained period order will tend to even out, and the piece will not demonstrate evolution or adaptation to a changing world. In general, the self-organising aspect of a self-generating patch will be in the initial 'discovery' stage, putting the system together, a long, often circuitous process whose goal-directed nature encourages evolution (though the desired state of 'sustained sonic interest' is necessarily subjective and goals are under-specified). In *The Thing Breathed* the performer is necessary to move between the zones of sonic interest, zones that are often hard to come across, but that burnt themselves into my musical memory as I conversed with the system. The search process – effected through twisting knobs, moving faders and listening – became the piece: how to move from one interesting area to another and form a satisfying structure, all the while subject to the contingency and scrutiny of a live audience.

Even though I put this system together and perform with it, patching cables and turning knobs,[4] the locus of the multi-way interaction is a black box[5] to me, and I cannot directly impose my

1 See Karen Barad on performativity: "Unlike representationalism, which positions us above or outside the world we allegedly merely reflect on, a performative account insists on understanding thinking, observing, and theorizing as practices of engagement with, and as part of, the world in which we have our being" (Barad 2007, 133).
2 "Self-organizing systems was perhaps the most visionary subfield of cybernetics research" (Cariani 2017, 121).
3 Strange calls such systems "self-playing dream machine[s]" (Strange 1983, 244).
4 'Wiggling', as the denizens of Muff Wiggler, the pre-eminent modular synthesis forum, would say.
5 "The black box is a way of saying we cannot know what goes on inside any system, we have only our descriptions of behaviours we set up and observe: and when we find regularities, it is in the behaviours of the black box vis-à-vis our observation and interpretation as and when we interact with it" (Glanville, 2001b, 654).

will on the system; I cannot directly 'write' the result I desire. I have to work with it, coaxing fruitful zones of exploration. It means accepting the limitations of the equipment; going with the grain of the materials at hand rather than trying to subject the material medium to the will, the score, the plan, the program. In this way, the interaction feels more like a conversation, and we must learn each other's tolerances and predilections in order to reach some form of consensus. Of course, being the one who will be the final arbiter of consensus, I have an important element of control in the relationship, but if the questions asked are about the machine's fitness for autonomous operation, then we have a chance, through sound, to explore control itself, and the nature of the devolution of control in human-machine interaction. These are notably cybernetic concerns, and the point is that they can only be addressed through a performative unfolding of the system, since the complex nature of the feedback network precludes analytical penetration, resists being separated out into constituent parts, and makes pre-programming an intricate, unpredictable balance of memory and contingency. In ongoing interaction one must allow the machine its agency, one must let it be as it becomes.

The Thing Breathed addresses areas which are currently, for the most part, addressed through conventional computation: A-life concerns like emergence, adaptation, and of course, liveliness itself; cybernetic concerns like boundaries of systems, signal flow, feedback, and of course, self-organisation. It is an interest in performative emergence through play with the world, and a desire for fluidity of boundaries in musical systems through complex feedback interaction, that leads to the use of analogue modular synthesis. Truly complex and fascinating zones of sounding behaviour can be reached through the interconnection of relatively few, simple modular elements, and in my interaction with the system I'm twisting knobs, patching cables, and often just listening. I find this tactile/audile ergonomics preferable to the interface of the computer, where listening is so often accompanied by looking. I like that my modular systems don't have a screen. Also, and crucially for me, as a musician creating performance systems, there is no lag as processing happens, because all processing is concurrent. There is no sequential ordering of constituent parts or events, there are no interrupt routines. There is a flow and a coming into being. Of course, the A/D[6] - processing - D/A lag is a byproduct of one of digital audio's huge strengths - if you can make recorded sound (almost) immediately available for manipulation, then you have a very powerful system for having a conversation with a processed historical version of your own sound making, and much excellent electro-acoustic music has been made in this vein. But if you are more interested in the bringing into being of sound, and a direct, concurrent interaction with that becoming, then this lag can present some serious problems. *The Thing Breathed* is a performative response to such issues.

6 Analogue to digital conversion.

2.Technical details and documentation

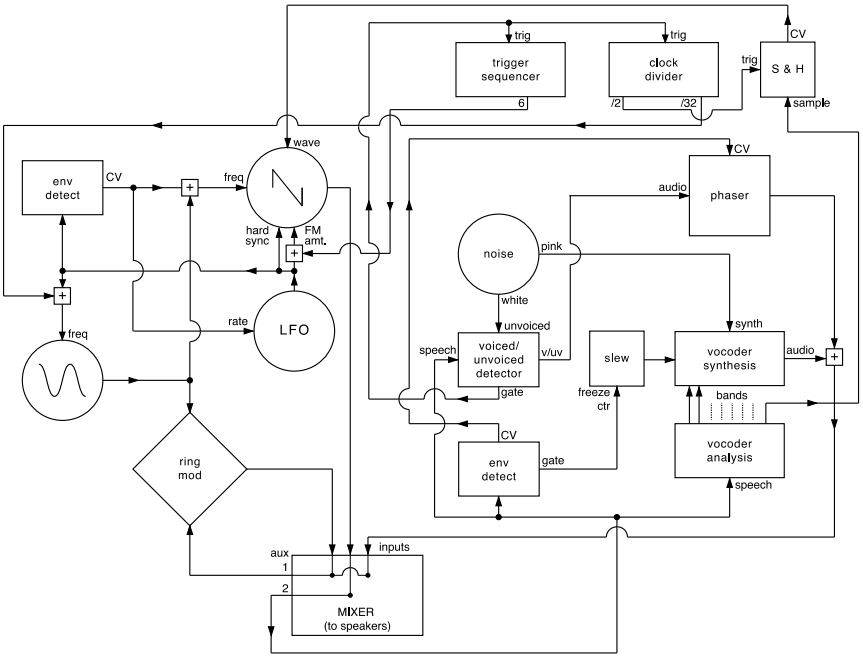

Figure 1. Schematic diagram of the modular system denoting functional blocks and signal flow

Documentation from two of the performances from 2015 can be found here:

Video: https://www.youtube.com/watch?v=H8LlbtgdB5M

Audio: https://soundcloud.com/user-551299121/the-thing-breathed-church-of-modular

Review and interview with the composer after the first performance: http://aestheticsynthetic.com/interviews/joewatsonelectronic-musicperformance/

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